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# BOWLING.

—BY—

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A. E. VOGELL.

INSTRUCTIONS HOW TO BOWL ; THE ALLEY AND ITS PROPER CON-  
STRUCTION ; HOW TO SCORE, HOW TO HANDICAP, SHOW-  
ING THE PHYSICAL BENEFIT TO BE DERIVED  
FROM ITS PRACTICE.

GIVES RULES FOR PLAYING THE VARIOUS GAMES HAVING THEIR  
ORIGIN IN TEN PINS, AND WHICH BEAR DIRECTLY  
UPON THE GAME.

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WITH ILLUSTRATIONS.

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**NEW EDITION.**

REVISED AND EDITED BY JAMES S. MITCHEL.

PUBLISHED BY THE  
AMERICAN SPORTS PUBLISHING COMPANY,  
241 BROADWAY, NEW YORK.

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ENTERED ACCORDING TO ACT OF CONGRESS, IN THE YEAR 1895, BY  
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## BOWLING.

One of the most fascinating of our winter pastimes is bowling. From the first sign of autumn until well into the spring the bowling-alleys in every city and town throughout the land are thronged with enthusiastic admirers of the sport.

Regarding the early history of game it is hard to speak with accuracy; for almost in every country where civilization has entered their historians speak of it under different titles and claim its origin distinctly to themselves. The English called it bowls, the French kayles, the Dutch rubbers, and the Irish carrigeen, while the pastime did not seem to be known to the other old world nations.

The earliest authentic representation of a game played with bowls, to be met with, occurs in a thirteenth century MSS. in the Royal Library (No. 20, IV.). There two small cones are placed at a distance from each other, and the business of the players was evidently to bowl at them alternately; the successful candidate being he who could lay his bowl nearest to the mark. In the fourteenth century the game seemed to have grown in popularity and, as should naturally be expected, underwent some changes. The cones disappeared and a small bowl, or jack, was substituted. This jack served as a mark for the bowlers, three of which always constituted a game. The bowls were made of stone.

Simultaneously the French had a game called *carreau*. According to Cotgrave it consisted of placing a square stone at the end of a lane, and whoever succeeded in displacing this stone with a stroke of his bowl was the winner. Kayles, the other game in vogue in France, is derived from the French word *quilles*. It was played with pins and, no doubt, gave origin to the modern game of nine-pins, though, primitively, the kayle-pins do not appear to have been confined to any certain number. The pins were usually placed upon a square frame, in three rows and the size and shape of the pins in all cases differed. The player stood about sixty feet away and pitched

a short, stout club at the pins. The method of deciding the winner in a match is not given, nor the number of strokes allowed. The game was sometimes called "jeux de quilles a baston."

Bowling greens are said to have originated in England, and bowling upon them was a very popular amusement. Even at the present in most country towns they are to be found, and some few still remain in the vicinity of London, but none are now frequented as they were accustomed to be formerly.

The inconveniences to which the open green for bowling were necessarily obnoxious suggested, we presume, the idea of making bowling alleys, which, being covered over, might be used when the weather would not permit the pursuit of the pastime abroad, and therefore they were usually annexed to the residences of the opulent, wherein, if the ladies were not themselves performers, they certainly countenanced the pastime by being spectators; hence the King of Hungary, in an old poem entitled "The Squyer of Low Degree," says to his daughter "to amuse you in your garden":

"An hundredth knightes truly tolde,  
Shall play with bowles in alayes colde."

Andrew Bordie, in his "Dictane of Helthe," describing a nobleman's mansion, supposes it not to be complete without a bowling-alley. Among the additions made by Henry VIII. at Whitehall were divers fair tennice-courts, bowling-alleys and a cock-pit.

It appears that soon after the introduction of bowling-alleys they were productive of very evil consequences, for they became not only exceedingly numerous, but were often attached to places of public resort, which rendered them the receptacles of idle and dissolute persons and were the means of promoting a pernicious spirit of gambling among the younger and more unwary part of the community. The little room required for making these bowling alleys was no small cause of their multiplication. In the end these nurseries of vice were universally decried, and especially such of them as were established within the city and suburbs of London, where the ill effects arising from them were most extensive.

In the beginning of the present century long bowling made its appearance. It was performed in a narrow enclosure, often 90 feet in length, and at the further end was placed a square frame with nine small pins upon it. At these pins the players bowled in succession, and a boy, who stood by the frames, returned the pins and



called out the number, which was placed to the account of the player. Sometimes this game was called Dutch Rubbers.

An account of the early history of bowling would be incomplete without the description of a game called "Half-bowl." It is practised in a great many parts of England at the present day, but in some places is more popularly known as "Roly Poly." There are fifteen small pins of a conical shape required for this pastime, twelve of which are placed at equal distances upon the circumference of a circle of about two feet and a half in diameter; one of the three remaining pins occupies the centre, and the other two are placed within the circle at the back part of it and parallel with the bowling place, but so as to be in line with the middle pin, forming a row of five pins, including two of these on the circumference. In playing the game the bowl, when delivered, must pass above the pins and round the end pin, without the circle, before it beats any of them down; if not, the cast is forfeited, and owing to the great bias of the bowl, this task is not very readily performed by such as have not made themselves perfect by practice. The middle pin is distinguished by four balls at the top, and, if thrown down, is reckoned for four toward the game. The intermediate pin upon the circle, in the row of five, has three balls, and is reckoned for three; the first pin without the circle has two balls and is counted for two, and the value of the others singly but one. Thirty-one points is a complete game. The bowl is one-half of a wooden sphere.

### ITS GROWTH IN AMERICA.

When Manhattan Island was first settled, or during the sixteenth and seventeenth centuries, it was the custom among the young and middled-age men of the colony to play bowls and other games on a small green plot of ground or on any suitable piece of smooth and level turf, the dimensions varying according to the ground available, but from 90 to 150 feet in length, with a proportionate width. The favorite place in those days was known as Bowling Green, New York City, which is associated with stirring events in American history. Later on, in order to enjoy the sport in winter as well as in summer, it was only necessary to build the alleys under shelter. As the population increased so did the game, various improvements being made in the building of the alley, until in 1849 it reached its supposed zenith. On Broadway, from Barclay street to Eighth street, there were one or more alleys to be found on every block.

Early in the present century the game of nine-pins, for at that time only nine-pins were used, was highly popular. This, in a measure, was ascribed to the improvements made in the construction of alleys, many of which were erected on Broadway and in the Bowery. Along in the "fifties" the game commenced to retrograde. In New York and Vermont during the "sixties" laws were passed prohibiting the continuation of the game of nine-pins, but was useless, as an extra pin was added, and the name changed to ten-pins. With that period practically begins the present game, which in the past three years has taken such strides in popular favor. It might be well to state, before going further, the present game, while related, to a certain extent, to it, is not the game of nine-pins, head-pin or cocked hat, and should not be confused with the same. In 1875 the National Bowling Association was organized, with eleven clubs as charter members, in order to promote a more amicable feeling among the clubs, and through them advance the standard of the sport. Tournaments were held at intervals, and rules laid down to govern the game. During 1889 and 1890 the interest began to increase, and a visit could not be made to any of numerous alleys without witnessing a conflict between two local clubs.

### DEFINITIONS OF TERMS USED IN THE GAME.

**BREAK.**—When it requires all three balls to knock down the ten pins on the alleys.

**BRIDGE.**—When pins Nos. 7 and 10 are left standing after first or second ball in any frame.

**CHALK BOX.**—Box at the foul line, from which the shoes are chalked to prevent slipping.

**DEAD WOOD.**—Pins which have been bowled down and remain either on the alley or in the pin pit. Dead wood must always be cleared from alley before a ball is rolled.

**FOOT MARK.**—A horizontal line drawn directly across the alley, "the centre point of which line on the alley shall be 60 feet from the centre of the head-pin spot."

**FRAME.**—One of the ten equal parts into which the game is divided, corresponding to the innings of a base ball game. See diagram on page 12.

**FRAME.**—The triangular outline at the extreme end of the alley on which the pins are arranged. See page 10.

**GUTTER.**—The two troughs, one on each side of the alley, into which the balls roll when leaving the alley from the sides.

**HEAD-PIN.**—Pin No. 1. See diagram on page 10.

**KING-PIN.**—Pin No. 5. See page 10.

**LOFTED BALL.**—One which upon leaving a player's hands bounces one or more times on the alleys on its way to the pins.

**PIN PIT.**—Space back of the alley into which the pins fall when bowled from the alley.

**PIN BOY.**—Boy who returns the ball, casts and resets the pins.

**RUNWAY.**—Raised slides at each side of the gutters, over which the balls are returned to the players.

**RUNWAY.**—Feet to the rear of the foul line, over which the player runs before casting the ball.

**POODLE.**—When a ball rolls into the gutter before striking a pin.

**SPARE.**—When all the pins have been removed from the alley with two balls.

**STRIKE.**—When all pins are knocked down by the first ball rolled in a single frame.

## ALLEYS.

A good ten-pin alley is the perfection of a carpenter's work. A great deal might be written in regard to the alley instruction to those who pay for its construction. It is evident that the greater the depth of the wood used by the builder, the pieces being placed on their edges at right angles with the foundation, the more solid and durable will be the alley. When the construction of the alley is thought about, the building should be devised before the alley is put down. The comfort of those who play as to room. H. Montgomery, of Newark, has an idea of the proper style of alley for championship matches. The beds should be 78 feet long and 42 inches wide; gutters  $8\frac{3}{4}$  inches in width. The pits, in order to avoid unpleasantness in balls rebounding, should be 5 feet long and 10 inches deep. This will give a 6 inch cushion, a swing of 12 inches, and allow 3 feet 6 inches clear for balls and pins.

By having beds of 78 feet, there can be 60 feet from the foul line to the first pin and 15 feet of runway behind the foul line, thereby giving the player plenty of room to gauge his shot. (Fig. 1.)

The best alleys, and those that are almost proof against moisture and consequently never warp, are ones built with a maple centre (Fig. 2). But by far the best alley yet invented and one that seems

to be able to withstand all moistures and climatic changes, is a slate alley (Fig. 3); when once properly level no amount of abuse will ever afterwards put it out of shape.

### HOW TO BOWL.

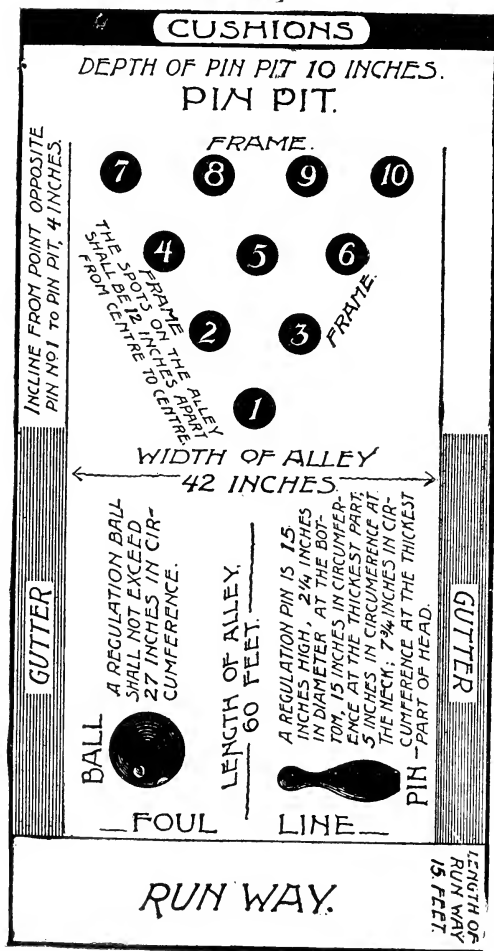
There are about as many opinions on this subject as there are grains of sand on the seashore, all of which are worthy of some commendation. The physical anatomy of bowlers makes it almost compulsory that each should adapt himself or herself to the style best fitted to them. Now it will be the object at the beginning to learn how to properly handle a ball. These balls vary in weight from one to fifteen pounds, and from the size of a baseball to a ball 27 inches in circumference. It hardly appears necessary to warn the novice about the folly of beginning with the largest balls; it is an unwritten law of physical culture to begin with lightweight first and gradually increase it; this every athlete will respect; but bowling is different and, while the same rule applies with equal force, there seems to be an all-powerful inclination to begin with heavy balls. This has the effect of straining the nerves in the back, arms and legs, and gives the novice the feeling next morning that he must have run up against something hard during the night. He also finds after an hour's steady practice that the ball is very stubborn, and that he has made little or no progress. Stick to the small ball until you acquire that familiarity with it which will assure you a certain amount of gracefulness as well as accuracy. In lifting a ball from the runway don't grab it with both hands, one hand is plenty strong enough to handle it. Turn the ball over until the holes in it are facing upwards, insert the thumb, index and second fingers and lift it from its position, letting the arm hang naturally by the side. Then walk to the position you desire behind the foul line. If you wish to roll a centre ball, *i. e.*, from the centre of the alley, direct at the head pin, place yourself near that imaginary spot, holding the ball with both hands in the centre of the body against the chest, then get your intended line by a glance of the eye from the head pin to where you stand. Let the hand which holds the ball down to your side; then bending your body at waist and knees, with the right foot slightly to the back of the left, start the ball a-swinging like the pendulum of a clock, beginning slowly and increasing gradually until the velocity desired is attained; take a run of a few steps forward, taking care not to step over the foul line, and cast the ball. Whichever

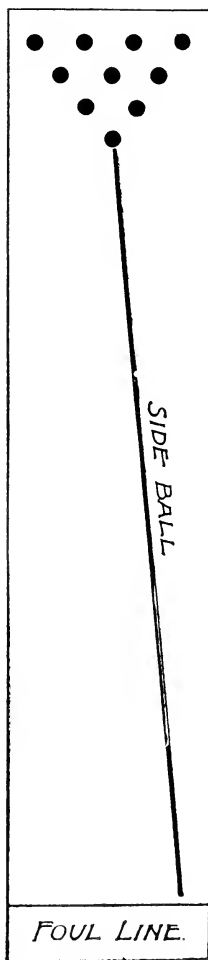
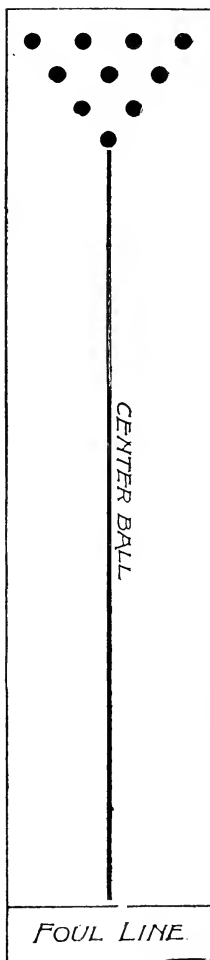
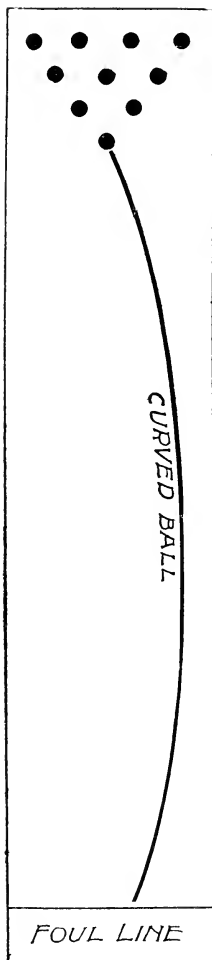
style a novice adopts it should not be departed from, if an improvement is desired. Before stepping up to the runway for a ball, the soles of the shoes, unless tennis or rubber-soled ones are worn, should be well chalked from the chalk-box at the head of the alleys; this will prevent any possibility of slipping while delivering the ball. Don't take a ball from the runway while another ball is on its way down; this will prevent the fingers from being smashed between two balls.



# BOWLING.

## REGULATION ALLEYS.





The most comfortable costume to wear during a match game is a sailor or lawn-tennis shirt, trousers fastened by belt, and lawn-tennis shoes. This affords freedom and permits of physical benefit.

### HOW TO SCORE.

For convenience in bowling the following tabulated formula has been arranged:

#### SCORING FORMULA.

PLAYERS.	FRAMES.										Strikes...	Spare ...	Breaks ...	Game.
	1	2	3	4	5	6	7	8	9	10				
TOTALS.														

This table consists of a frame, which is subdivided into horizontal and perpendicular lines. The number of horizontal lines is equal to the number of players in the game, plus 3, and the number of perpendicular lines to 14, plus the two border of outside lines. Room sufficient to permit of the writing in of the players' names must be allowed between the left hand border and first perpendicular lines, after which the remaining space is divided into 14 equal parts. The four places at the extreme right are reserved for the totals, and begin from the left, placed in this order: strikes, spares, breaks and game. The other ten places are known as frames, and are ten in number. In all alleys the diagram will be found upon a side wall, at



a convenient height to permit scoring. The game is as its name designates, a game of ten pins, and consists in rolling a number of balls with the object in view of removing as many pins from the alley with each ball as is possible. Three balls are allowed each bowler to each frame. Should the first ball remove the entire ten, the bowler is credited with a strike (—) which is placed in the upper right hand corner of the frame in which he was bowling. Should it necessitate two balls before they are all removed, the bowler scores a spare (+) which, like the strike, should be placed in the upper right hand corner of the frame in which it is made. If it should require all three balls to remove the pins, it counts 10, and is known as a break; but if after the three balls have been rolled pins are still left standing, it only counts as many points in that frame as there are number of pins knocked down. Now let us suppose that a certain Mr. Blank has entered on the alleys and starts to roll a practice game, single-handed; the first ball he rolls knocks down five pins, the second, two, and the third, 1, making a total of eight in the frame, which is placed to his credit on the blackboard or score book, thus:

GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank..	8									

In the next frame his first ball takes nine pins down and the one remaining pin is carried off by the second ball. This leaves him one ball yet to roll, or a spare ball, and is credited to him in the second frame like this:

GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank..	8	●								

He starts on his third frame with one ball yet to bowl on the second frame. With this spare or third ball he knocks down four pins; with the first and second balls in the second frame he had cleared the alley scoring 10 pins which, added to the number of pins made by the

spare ball, equals fourteen; now, the score of every frame must have added to it the score of every preceding frame. The score in the first frame was 8, and in the second frame 14, giving a total of 23, and is placed in the second frame:

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23								

But he is still on the third frame, and the spare ball tallied in the second frame counts the same number of pins in the third frame which makes it also count as the first ball in the third frame. There are now two balls left with which to remove the remaining pins; on the second ball he again removes all the pins and counts a spare, which is placed in the upper right hand corner:

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23								

With the next ball he scores 6 pins, added to the 10 already made as indicated by the spare in the third frame, gives him a total of 16, added to the score of the second frame 23, gives the score for the third frame as 39:

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank..	8	23	39			.				

After bowling the remaining two balls by which he only succeeds in removing three additional pins which, added to the 6 on the spare ball in the third frame, which is also the first ball in the fourth frame, gives a total for that frame of 9, which, added to the 39 in the third frame, gives a grand total of 48:

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48						

In the next or fifth frame he removes all the pins with the first ball thus scoring a strike :

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48	+					

And in the sixth frame, by removing all the pins with two balls, he scores a spare :

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48	+					

Having made a strike in the fifth frame gives him ten pins for one ball, and two balls to be rolled in the sixth frame, and their totals to be counted in the fifth frame; with them he scored a spare or 10, which gives a total of 20 for the three balls on the fifth frame. This added to 48 in the fourth frame makes his score for the fifth frame 68, and spare ball in the sixth frame :

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48	68					

With that spare ball, rolled in the seventh frame, he makes a strike, or 10 pins, which, when added to the 10 pins scored with the first and second balls in the sixth frame, makes 20 pins for the three

balls, which is to be added to the 68 pins in the fifth frame and tallied in the sixth frame, 88 :

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank..	8	23	39	48	68	88	+			

He begins the eighth frame with two balls yet to be rolled in the seventh frame; with those two balls he removes 7 pins which, added to the 10 pins made with the first ball, or strike, gives him a total of 17 pins, to which is added the 88 pins in the sixth frame and closes the seventh frame with 105 :

## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48	68	88	105	115		

The ninth frame is begun evenly again, and with the first and second ball he knocks down all the pins scoring a spare :

## GAME BY FRAMES,

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	48	68	88	105	115		

Now comes the "wind up" or tenth frame; but he has yet one ball to roll in ninth frame, and he makes a strike or 10 pins, added to the 10 pins made with the first and second balls in the ninth frame, gives him 20, which, added to the 115 in the eighth frame, closes the ninth frame with 135. There are now two balls yet to be rolled in the tenth frame, and the pins being all down are again set up; with the second ball he again makes a strike, and one more ball to be rolled again; the pins are set up and, with the third ball, he makes another strike; this counts 10 more or 30 in all for the tenth frame; 10 by the first ball, 10 by the second ball, and 10 with the third ball, which,

added to the 135 in the ninth frame, finishes the game and gives him a grand total of 165:

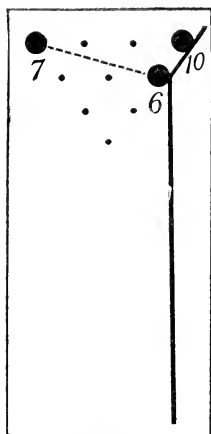
## GAME BY FRAMES.

<i>Players.</i>	1	2	3	4	5	6	7	8	9	10
Mr. Blank.	8	23	39	43	63	88	103	115	135	XXX 165

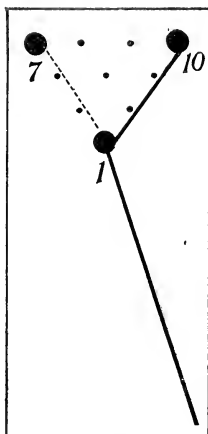
## SPARE BOWLING.

Spare bowling is the mainspring of the game and presents to the bowler hundreds of geometrical combinations which will be found sufficient to call forth the very highest order of mental strength and executive ability, in order to accomplish them. Unlike its side-partner strikes, there is very little chance for "luck" to back it up. It must be played on merit. While it is true that strikes have a greater numerical value and assure the bowler making them much credit, it is left for the spare-bowler to awake in the anatomy of the spectators that burst of enthusiasm, that out-pouring of pentup feeling which has been compared to the "roaring of the surf." Certain it is that they are the most difficult of execution, and the making of them closely resembles many billiard shots. Following are diagrams of six of the most difficult ones, the making of which takes a greater amount of skill and study than the average on-looker has any conception.

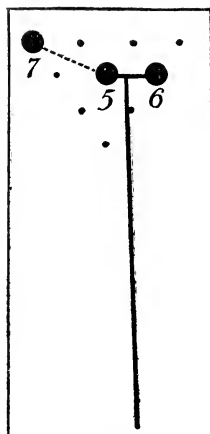
The spare in diagram No. 1 is quite frequently met with during match games. Expert bowlers play it with a straight right side ball kissing the pin No. 6 slightly on the off-side carroming to pin No. 10. No. 6 when rightly struck, is sent flying over against No. 7. A novice invariably tries to make this spare with a right side ball and a carrom from 6 to 7. He will succeed in knocking over 6 and 10, but 7 need have little fear of being reached by the ball, the distance being too great. A triangular spare such as is shown in diagram No. 2 is executed by rolling a cross alley ball direct at the head pin, which is thus sent against No. 7, the ball glancing off toward No. 10; the spare can be made by rolling from the other side of the alley and the result obtained in the same manner. Spares like that in diagram No. 3 can only be made by rolling straight



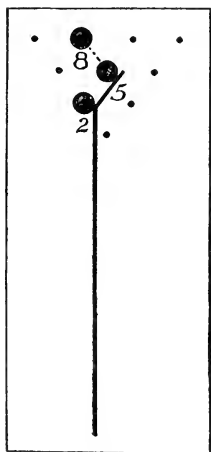
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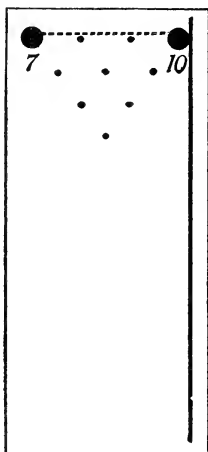
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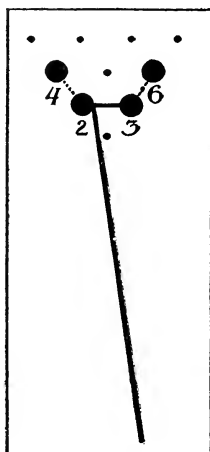
(3)



(4)



(5)



(6)

----- DIRECTION OF PIN.  
 ————— DIRECTION OF BALL.

right center ball 5 and 6 and sending pin 5 to 7. A bowler may often be seen playing a carrom shot on 6 and 5, but it is exceedingly rare to see 7 removed by it. Diagram 4, to the uninitiated, looks to be the easiest thing in the world, but the result is mostly otherwise. To play a side ball at the head pin would lose the spare, as 8 would be left standing as serenely as though never having run a chance of a knockout. There are two ways to make it; first, by rolling a centre ball for the right side of 2 which is sent into the gutter, the ball taking off 5 and 8; second, to carrom slightly on the right of 2 going to 5, which then takes 8, the ball going to the gutter from 5. A spare like that in diagram 5 makes a team despair of its player making more than nine points in that frame. It is what bowlers call the "daisy" and is the most difficult of execution of any known spare in the game. It can be made by rolling a straight side ball from either side of the alley evenly leaving not more than  $\frac{1}{2}$ -inch space between it and the gutter, but with so much speed must the ball be sent and the pins so delicately kissed, that it is missed twenty times where it is made once. All first-class teams give spare-bowling their time and attention while practicing, and when trying for strikes study the positions in which the pins may be left should the strike be missed and their bearing on their chances for a possible spare on the next ball rolled. These five examples will suffice to illustrate the importance of spares in the game and also that they must be played on the same general principle as if they were balls, instead of pins, on a billiard table.

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### WOMEN BOWLERS.

Bowling is not a pastime dedicated to masculine monopoly exclusively, for women seem to take as much interest and derive as much enjoyment mentally and physically as the sterner sex. In every city there are winter social clubs where once a week, on some specified night, the members of both sexes meet and to the musical accompaniment pass the evening in bowling. These clubs are exceedingly popular among young people, and with them is rapidly succeeding the "Once a Week" dancing clubs. Many of these combine both features; dancing taking place among those players who are waiting the reoccurrence of their turn at the alleys.

The costume worn by women who indulge in the sport for the phy-

sical development which they derive from it, is a loose-fitting skirt rising a couple of inches above the floor, a blouse or waist worn carelessly easy, with the sleeves loosely fitting so as to permit the arms full play, and rubber-sole tennis shoes which should be well chalked from a box at the end of the alley. If a belt is worn, do not have it drawn too snugly, for the hips, next to the arms, receive the most benefit from the game, and as that benefit is gained by the expansion and contraction of those muscles caused by the stooping necessary to deliver the ball, a tight belt will bind so as to prevent a free and easy movement, hence, defeat the very aims desired. Corsets should not be worn, but if so, very loosely laced. Care should be taken to prevent a draught, but the alley must be well ventilated, for the lungs are continually absorbing the air and at a greater increase of speed than ordinarily; besides, the continual dropping of the pins and balls stirs up a certain amount of dust, not counting the fine specks of powdered chalk continually drifting about. Lady bowlers should not be influenced by seeing the size of the balls which are used during the game by the sterner sex and attempt to use the same weight, because they are not to be handled so easily and are likely to over-tax the muscles and cause a severe sprain. A small ball can be used just as effectively and the result on the score not materially changed. A ball whose weight is about 5 pounds is plenty heavy enough; besides, it will permit much more grace in the handling of it, therefore, will improve the style of delivery.

The game is recommended very highly for women who are troubled with backs and hips, and is, when played in moderation, very strengthening to those members. Women cannot be expected to make as high scores as men do, and should at the very first give up that idea. The formation of their arms is an impediment at the very outset, and prevents that freedom necessary for the proper delivery of a ball. A score of 100 made by them is equivalent to 200 made by a man, and 200 is equal to the maximum 300. The following three "Don'ts" should be respected by them:

Don't go with your fingers covered with rings or your arms with bracelets. They may be lost or broken.

Don't take a ball from the runway while another is on its way down, for the fingers are liable to be broken.

Don't use a ball heavier than can be comfortably handled; it is liable to cause a severe strain if it is done, and gives appearance of awkwardness.



## PHYSICAL BENEFITS.

Bowling, like all athletic sports, has its benefits and injuries to the human system. It combines in one the benefits derived from running without the exhausting after-effect of rowing in strengthening the muscles of the back, arms and legs; of shot-putting, and, in fact, there may be found in it some of the benefits of nearly every sport. The following quotations from Mr. Checkley's "Manual of Physical Training," a work unequalled in excellency, shows clearly where the sport will add to the human anatomy.

"The muscles of the body are arranged for the most part in complementary groups, by which they act together, pulling and relaxing as the case may be. Thus in the limbs the muscles which straighten the bones are called the *extensor* muscles, while those that bend them are called the *flexor* muscles. The *biceps* on the front of the upper arm are the flexor muscles, because they pull up the forearm. To straighten out the arm again, the *triceps* on the back of the arm exercise their office as *extensors*. In the same manner the flexors of the leg are on the back and the flexors of the hand are on the palm. The tendons join the forearm not far below the elbow joint, thus giving the muscles a very quick leverage on the arm. With so short a hold, however, this muscle requires great power. Of course in fixing, the arm, the forearm muscles—which in their turn are united with the upper arm—are brought into play. When the muscles on the front and back of the arm are drawn down it at once becomes rigid. The function of muscle is thus to pull. Every movement of which the body is possible is brought about by the pulling of one or more muscles. The pulling is, as I have said, accomplished by the contraction of the muscles, and this power of contraction is inherent in them. It belongs to their very nature. Of course, it is the duty of every healthy being to keep the muscles as perfectly under the control of the will as possible. The partnership between the brain and the muscles should be complete and continuous. It may be set down as an absolute truth that no one will become unconscious of his body in the right sense until he has first become thoroughly and intelligently conscious of every part of it. Now, the contractility of the muscles, the power it has to shorten and draw its ends closer together, depends on the extent and condition of the *fibres*, the bulky part of the muscles as distinguished from the hard and uncontractible tendons: the fibres looking, when highly magnified, like a bunch of red worms

all stretched in one direction, form the *meat* of the body as distinguished from the bone and gristle. In fact, the muscles make up in weight more than half the bulk of the body. From this it may be judged, without argument, that the health of this machinery is of very great importance to the health of the body. The muscles are not implements which may or may not be used and cultivated according to the taste and pursuits of the person. They must be used and developed, or the body will fall into ill health. They are more than half of us, and must be taken into consideration in a serious and intelligent manner.

"The chief reason why the muscles must be kept in use is that their health directly affects the circulation of the blood, and upon the perfect circulation of the blood physical health is greatly dependent."

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### HANDICAPPING.

Handicaps can be applied in bowling as well as in any other sport and the time is not far distant when the Board of Governors will, have to give the matter attention. There is very little interest in a game between such clubs, for instance, as the Phoenix and the Grips, when the result is a foregone conclusion. Now, as to handicapping, let us take the Phoenix Club, which has an average of 837 in twenty games, and the Grips, which has an average of 777 in the same number of games. They could be made equal by the following method: Add the averages of both clubs and divide the total by two. Subtract the result from the highest average and add the difference to the lowest average. This difference will be the handicap. The handicap should be made on the average of each club in the last tournament in which such club rolled at least ten games. An objection may be made to this on the grounds that each club is liable to change its players; in that case the average of the new member or members of the team can be taken for the last ten games rolled by them and added to the team average, less the number of old members whom the new members substitute, and a handicap taken on the same system. An official handicapper can be appointed, whose duty it shall be to know the relative merits of the clubs who are members of the American Amateur Bowling Union.

The schedules of the sectional as well as final tournaments, with the names of the players on such team, can be submitted to him for

**handicapping.** It may be said that this would be a herculean task. It is not so. There will not be more than sixty clubs participating. The handicaps of the Amateur Athletic Union number 400 to 500. These are all made within three hours.

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## GAMES OTHER THAN TEN PINS.

### COCKED HAT.

This game is played with pins 7, 10 and 1 standing. The rules of the American Amateur Bowling Union govern this game. The system of scoring is the same in this game as in ten pins, except that a strike counts three. There are no spares, and each pin knocked down equals 1. To compute the scores follow the same rules as laid in Chapter VII., only remember the difference in the value of the pins and strikes.

### COCKED HAT AND FEATHER.

In this game pins 7, 10, 5 and 1 are standing. There are ten frames as in ten pins. The object is not to knock down the feather, pin No. 5; all the other pins must be knocked down or the frame counts nothing; if this is done the frame counts one, three balls are allowed in each frame, and 10 points is the maximum. Dead wood is not removed except at the end of a frame.

### COLLEGE GAME.

Here pins 5 and 1 are standing and an additional pin placed in a direct line 12 inches in advance of pin No. 1, and is known as the picket pin. Pin No. 1 counts 5 points, and pin No. 5 counts 7. The object is to bowl down pins 1 and 5 and have the picket pin standing; if it is knocked down the frame counts nothing. Strikes and spares count in this game, three balls are used to each frame, and there are ten frames. Score the same as in ten pins, only remember the value of the pins.

### NEWPORT GAME.

All pins are spotted. There are ten frames and three balls to each frame. The game is to knock down an exact number of pins from 1 to 10, not necessarily in rotation. The bowler who scores the largest number of winning frames is the winner. If a player in any frame bowls down pins equal in value to any which he has scored in preceding frames, the frame counts for nothing, and any spare balls he may have saved in that frame counts for nothing. Gutter balls

count and dead wood permitted to remain on the alley; one score is only permitted to each frame and alleys used alternately. Balls rebounding from the cushions do not count. The manner of scoring is as follows:

## FRAMES.

<i>Name.</i>		1	2	3	4	5	6	7	8	9	10	<i>Total.</i>
Jones...	Frames lost.			+		+				+	+	4
	Frames won.	1		3		5		7		9	10	6
Smith..	Frames lost.		+				+					2
	Frames won.	1	2		4		6	7	8	9	10	8

Here it will be seen that Jones has lost 4 frames and won 6; and Smith has lost 2 and won 8; Smith therefore wins. The + above the number in frames won, indicates that the player bowled in one frame the same number of pins as he did in some other frame and hence can count nothing.

## BOWLING.

### HEAD PIN GAME.

The pins in this game are set up like this -



3



2



1

There are nine pins spotted. The game is divided into 4 frames, in each of which a bowler is allowed 4 balls. Two balls being rolled on each alley. The object is to knock down the head pin first; when that is done, all pins falling in consequence are credited, but do not if the head pin is not struck, in which case the ball is lost to the bowler. All pins are respotted after each ball has been rolled, and each pin counts 1; the maximum score is 144.

## THE GLEN ISLAND.

Three pins are used, 1, 2 and 3. See cut of head pin game. Should the head pin be the last of the pins knocked down, the king or center pin counts 2 and the rear pin 3; when the head pin is bowled down, the center and last pins when knocked down, have a value of 1. The head pin only has a value of 1. The dead wood is allowed to remain on the alleys and there are not any restrictions. The possible score in the ten frames is 60.

## SEVEN UP.

Is played with all pins standing except pins 5, 2 and 3. The usual number of balls are used, strikes and spares counted; each pin counts 1. Penalties there are none, neither is the dead wood cleared from the alleys. There are ten frames to a game, and 210 is the possible score.

## NINE PINS, HEAD PIN, OUT.

As its name implies, all pins remain up except pin No. 1. The number of frames and balls are the same as in ten pins. There are no penalties, neither is the dead wood removed. One pin only in each frame must be left standing or there is no count. The maximum score is 10.

## T GAME.

Pins 7, 8, 9, 10, 5 and 1 remain up. The balls and number of frames are the same as in ten pins. Strikes and spares count 6 each. There are no penalties and dead wood is allowed to remain. Maximum score, 180.

## PIN POOL.

After the game of the same name in billiards. All pins are up and but one alley used. Fifteen players can participate; their order of rolling is determined by throwing out small ivory balls from a leather botter and the number on the ball indicates the players turn; other balls with numbers on up to 25 are thrown out. The game is 31 and each bowler endeavors to knock down sufficient pins, which, together with the number on the ball he has drawn, will make the desired total. Should the number of pins knocked down taken in conjunction with the number on the ball he has, amount to over the 31 points required, he is declared out of the game and must put up five cents to re-enter. The man who runs out first takes the pool. Each bowler is allowed one ball. The rules governing this game are as follows;

1. The number of the ball must be deducted from 31, and the balance made by the pins.

2. When number one is called upon to play, he looks at his ball (the number on which, we will say, is 21), and having ten pins to knock down to make him pool, he proceeds to roll, and if he should not make the necessary pins in that inning, he must wait until his regular turn comes.

3. He who makes 31 first is the winner of the pool.

4. Only one ball can be rolled in each inning.

5. Whenever a player makes over 31, he is "burstcd," and must declare himself so.

6. When "burstcd." the player has the privilege of taking another numbered ball by paying the original ante, and in such cases he comes in at the foot of the class; for instance, if there are seven in the pool, the first "burstcd" man comes in number eight in the play.

7. The game continues until 31 is made.

8. No lofting or throwing of balls is allowed; the balls must be rolled.

9. A player has the privilege of rolling with any kind of ball, whether solid or not.

10. All pins knocked down by a player in one inning must be scored for him on the board or slate used for that purpose.

11. The board or slate must be placed in such a position that the players can see from the alley the number credited to them.

12. The gamekeeper is the final judge in all matters of dispute.

#### NINE UP AND NINE DOWN.

All pins up. The player tries to knock down but one pin with the first ball, and counts one if he does it; with the remaining two balls he endeavors to knock down all the remaining pins except one, which also counts one. Twenty is the maximum; no penalties; dead wood allowed. Ten frames, three balls.

#### HEAD PIN—FOUR BACK.

Pins 1, 7, 8, 9, 10, standing. Two is counted if pins 7, 8, 9, 10 are knocked down and pin No. 1 left standing. If all pins are knocked down, the player counts 1. No penalties; dead wood allowed. Ten frames, three balls, maximum, 20.

#### FIVE BACK.

Pins 7, 8, 9, 10, and 6 standing; in case of a left handed bowler No. 6

is substituted by No. 4; strikes and spares count five each; maximum 150. No penalties; dead wood allowed. Ten frames, three balls; score after same system as ten pins, remembering difference in value of strikes and spares.

#### WHITE ELEPHANT.

All pins up. The game is to get as few pins as possible without the ball leaving the alley. A pool counts three for the player making it. The player getting the lowest score wins. Dead wood not allowed; maximum 10. Ten frames three balls.

#### NINE NO MORE AND NO LESS.

All pins up. Object to knock down nine pins with three balls, either one, two, three, or all three, if more or less than nine are knocked down the frames count for nothing. The player having the largest number of nines in ten frames wins. No penalties; dead wood not allowed; maximum, 10.

#### THE OPEN GAME.

Pins 7 and 10 up. Ten balls are allowed each one of the players and the object is to roll them down the alley between them without touching either. If the ball goes off the alleys into the gutter, it counts one; and if a pin is knocked down, it counts one. The player having the smallest score wins.

#### SEVEN DOWN.

All pins up. Object is to knock down only seven pins with three balls; if this is done with one ball, the other two balls must be rolled, and if any one of the three remaining pins are knocked down, the frame counts nothing and should one of those two balls go into the gutter the frame is also lost for the bowler. The player making the most-seven-in ten frames wins. Dead wood not removed; maximum, 10.

#### FOUR BACK.

Pins 7, 8, 9, 10 standing. Three balls. Ten frames, strikes and spares count as in ten pins. No penalties; dead wood allowed. Each pin counts 1; maximum, 120.



## BOWLING.

# Rules and Regulations of the American Bowling Congress.

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*(Adopted September 9, 1895.)*

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### RULE 1.

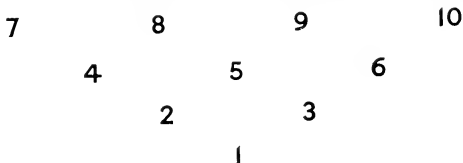
The Name—These rules shall be known as the rules of the American game of ten pins.

### RULE 2.

The Game—The game to be played shall be the American ten frame game, and shall be played on a regulation alley with regulation pins and balls.

### RULE 3.

The Alley—A regulation alley shall not be less than forty-one and shall not exceed forty-two inches in width, shall be sixty feet in length from the centre of the spot on which the head pin is placed to the foul line, and shall have a run back of the foul line of at least fifteen feet. The spots on the alley shall be twelve inches apart from centre to centre, and the four spots on the back row shall be at least three inches from the edge of the pit, measured from their centres. The spots shall not be larger than the base of the pins and made so distinct that they can be plainly seen by the person setting up the pins. Each spot to be properly numbered as per diagram:



The gutters shall incline down from a point about opposite the

head-pin to the pit, so that the gutter, where it enters the pit, shall be at least three and one-half inches in depth below the surface of the alley, or else shall be of sufficient width to permit a strip to be nailed therein in such manner as to make it impossible for the ball rolling in the gutter to touch or disturb any standing pin on the alley. Such strip must be at least one-half inch below the level of the alley, and must be beveled to carry the ball away from the pins. The pit shall be at least ten inches in depth below the surface of the alley. No cushions shall be attached to the partitions between or at the sides of the alleys or gutters at any point opposite the pins, but the partitions may be covered with one layer of leather only, not exceeding one-half an inch in thickness. The outside of the said covering shall not be less than twelve inches from the centre of the nearest corner-pin spot. The rear swinging cushions to have dark-colored covers.

#### RULE 4.

The Pins—A regulation pin shall be fifteen inches in height, two and one-quarter inches in diameter at the bottom, fifteen inches in circumference at the body or thickest part (four and one-half inches from the bottom), five and one-quarter inches in circumference at the neck (ten inches from the bottom) and eight inches in circumference at the thickest part of the head (thirteen and one-half inches from the bottom); shall taper gradually from the bottom to the largest part of the body, shall be of uniform weight and shall be stamped "A. B. C. Regulation Pin." The manufacturer's name and address may be also stamped thereon. In case of accident to any pin in use it shall be replaced by another as nearly uniform as possible.

#### RULE 5.

The Ball—The ball shall not exceed twenty-seven inches in circumference in any direction, but smaller balls may be used.

#### RULE 6.

Foul Balls—In all games there shall be a line drawn or painted on the surface of the alleys and gutters, the centre point of which shall be sixty feet from the centre of the head or front pin spot, measuring to the outside of the line, which, if possible, shall be continued upward at right angles at both ends. This shall be known as the foul line.

A player in delivering a ball must not step on or over the line, nor

allow any part of his body or clothing to touch on or beyond the line until after the ball has reached the pins. Any ball so delivered shall be deemed foul and must be announced at once by the umpire. The player forfeits all pins made by such foul ball, and such pins, if any, shall be respotted before the next ball is rolled. Should any ball delivered leave the alley before reaching the pins, or any ball rebound from the back cushion, the pins, if any, made on such ball shall not count, but must be respotted. All such balls to count as balls rolled. Pins knocked down by pin or pins rebounding from the side or back cushion shall count as pins down.

#### RULE 7.

**Dead Balls**—If any player roll on the wrong alley or roll out of turn, or is interfered with by a spectator or other bowler, or if any of the pins he is playing at be knocked down or disturbed in any way before his ball reaches them, or if his ball after being fairly bowled should come in contact with any obstacle on the alleys before reaching the pins, the umpire shall immediately declare such ball "dead," and allow the player to roll again, after replacing the pins as they were before such ball was rolled.

#### RULE 8.

**Dead Wood**—Pins knocked down but remaining on the alleys or in the gutters are termed dead wood and must be removed from the alleys before the next ball is rolled. Should a pin fall in removing the dead wood it must be respotted, and pins knocked over by pin or pins rebounding from any other alley must be respotted.

#### RULE 9.

**The Count**—Two balls shall be allowed for each frame, except when a strike is made as designated below or when a spare is made in the last frame, which must be completed before leaving the alley and on the same alley as made.

**Strikes**—A strike is credited when a player bowls over the tenpins with the first delivered ball, which is designated by a cross (x) in the upper right hand corner of his frame, and the player is credited with whatever pins are made in the next two successive balls.

**Spare**—A spare is credited whenever a player clears the alleys with the first and second ball. It is designated by a small line in the upper right-hand corner of the frame in which it is made, and the total score in that frame is left open till the player shall have

rolled one ball in his next turn when the number of pins knocked down by such ball are immediately added to the ten credited by the spare. In the last frame the player finishes before leaving the alley as heretofore provided.

**Breaks**—A break is charged to a player at all times when neither a strike or spare is made. Then the player is allowed only the total number of pins down. In playing, two alleys shall be used, the players of the contesting teams to roll successively, and but one frame at a time, and to change alleys each frame.

**Tie Games**—If the score at the end of the tenth frame be a tie, play shall continue upon the same alley until a majority of points upon an equal number of frames shall be attained, which shall conclude the game.

### RULE 10.

**Match Games**—In all match games the umpire selected shall be satisfactory to the captains of the competing teams. It shall be his duty to see that the regulations respecting the alleys, pins, balls and all the rules appertaining to the game are strictly enforced. The umpire shall also be the sole judge of fair and unfair play; and shall determine all disputes and differences which may occur during the game. He shall take a special care to declare all foul balls immediately upon their occurrence unasked and in a distinct and audible voice. He shall, in every instance, before leaving the alleys, declare the winning team and sign his name in the score books. The umpire shall not be changed during the progress of a game except for reason of illness or with the consent of captains of both teams, except as hereinafter provided. It shall be the duty of the umpire to see that all games begin on time. He must also keep the contesting teams playing from the beginning of the game to its termination, allowing such delays only as are unavoidable by accident, injury or darkness. There can be absolutely no appeal from the umpire's decisions, except for misinterpretation of the rules or regulations.

Two scorers shall be appointed, one by the captain of each team, whose duty it shall be to keep a correct record of the game, and at the conclusion thereof sign their names to the score. Only such scores entered in the regular score books and properly signed by the scorers and umpire shall be considered official. Neither scorer shall be changed during a match game, unless with the consent of the captains of the teams, except as provided below. No person engaged in a match game as umpire or scorer shall be interested in

any bet upon the game, and if any such interest be discovered during the progress of the game the derelict official shall be immediately removed and another selected in his place. Nor shall he be ever eligible to officiate in any such capacity again.

### THE TEAM.

In all games an equal number of players from each club shall constitute the teams. Each team must produce its full complement of players on the alleys at least fifteen minutes before the time for "play" to begin. The captain of each team shall enter the names of his players in the score books prior to the beginning of the game his team is to play. Players must play in regular rotation, in the order they are entered on the score books. After the first frame has been completed no changes shall be made in the players or their position, except as hereinafter provided. A player can only be changed during a game in case of injury or sickness, and then only on proof satisfactory to the umpire. The retiring player's place, in such cases shall be filled by a substitute selected by his captain from the eligible list of his club. Any team failing to appear on the alleys with its full complement of players shall play whatever men it has, and the opponents shall have the right to play their full team if they so elect, but should any eligible member of the club that is short appear during the game he may be added to the team, beginning his score, however, at the frame in which his associates are playing and completing the remainder of his game in regular order from that point.

### FORFEITED GAMES.

Any club detected tampering with the alleys, pins or balls or with the persons setting up the pins, or in any unfair way seeks to gain a victory, shall, on proof of the same, forfeit the game.

If, after the game has begun, one side refuses or fails to continue playing, unless such game has been suspended or terminated by the umpire, it shall be declared forfeited.

### RULES FOR THE GOVERNMENT OF TOURNAMENTS.

All tournaments shall be governed by the foregoing rules, except as hereinafter provided.

Tournament teams shall be comprised of any number of players on a side that may be agreed upon by their Board of Managers, but must all be active members of the club they represent, no honorary membership being recognized as eligible.

## BOWLING CLUBS.

A club desirous of entering a team in a tournament shall only be permitted to do so, providing it is a regularly organized club and shall have been existence not less than thirty days prior to making application to enter a team, and their application must be accompanied by a full list of their eligible members. Only regularly organized bowling clubs shall be eligible.

Regularly organized bowling clubs must be governed by a constitution and by-laws and must have duly elected officers and a regular headquarters, of which they are owners or lessees, where they must meet at least once a week during the bowling season for the purpose of rolling practice games.

Any club detected tampering with the alleys pins or balls, or with the persons setting up the pins, or in any unfair way seeks to gain a victory, or, assisting another club in gaining a victory, shall, on proof of the same, be expelled from the tournament. In all cases where a club is expelled, all games played by its team shall be declared null and void and shall not count as games played. Any team failing to meet its engagements shall, unless the failure be caused by unavoidable accident in traveling or by postponement with the consent in writing of the other team and the executive committee of the tournament, forfeit such game, and unless satisfactory excuse be given, such club shall be expelled. When a game is declared forfeited by the umpire, the team not at fault must roll the game for its average and record.

## THE UMPIRE.

The umpire shall be selected by the Board of Managers and must be acceptable to both the captains of the competing teams.

The Board of Managers shall be selected by the competing clubs from among their members, one representative from each club. They shall have entire control of all matters pertaining to their tournament. They shall decide the number of teams to be allowed to compete and the manner of selection, shall have authority to fill vacancies before starting the contests, shall decide on the number of games to be played and on what nights, at what hour play shall commence, what intermission shall be allowed before and between games for practice, the order in which the competing teams shall play, what prizes shall be offered and any other matters that may be properly within their scope.

# Rules of the American Amateur Bowling Union of the United States.

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*(Adopted September 10, 1892.)*

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1. These rules shall be known as the Rules of the American Amateur Bowling Union.

2. The game to be played shall be the American Ten Frame Game, and shall be played on a regulation alley with regulation pins and balls.

3. A regulation alley shall not be less than forty-one and shall not exceed fort-two inches in width, and shall have a run, back of the foul line, of at least fifteen feet. The spots on the alley shall be twelve inches apart from centre to centre. The gutters shall incline down from a point about opposite the head pin to the pit, so that the gutter, where it enters the pit, shall be at least four inches in depth below the surface of the alley. The pit shall be at least ten inches in depth below the surface of the alley. No cushions shall be attached to the partitions between, or at the sides of the alleys or gutters, at any point opposite the pins; but the partitions may be covered with one layer of leather, only, not exceeding one-half an inch in thickness. The outside of the said covering shall not be less than twelve inches from the centre of the nearest corner pin spot.

4. A regulation pin shall be fifteen inches in height, two-and-a-quarter inches in diameter at the bottom, fifteen inches in circumference at the body or thicket part (four-and-a-half inches from the bottom), five inches in circumference at the neck (ten inches from the bottom), and seven-and-three-quarters inches in circumference at the thickest part of the head (thirteen-and-a-half inches from the bottom.)

5. A regulation ball shall not exceed twenty-seven inches in circumference.

6. In the playing of match games a line shall be drawn across the alleys and gutters, and continued upward at right angles at each

end, if possible, the centre point of which line on the alley shall be sixty feet from the centre of the head-pin spot.

7. Match games shall be called at eight o'clock P.M., and must be started at or before 8.30 P. M. Should either club fail to produce any of its men at the latter hour the captain of the team present may claim the game.

8. In match games an equal number of men from each club shall constitute the teams. In case a club shall not be able to produce a full team, it may play, but the opposing club may play its full team if present.

9. In playing, two alleys only shall be used; the players of the contesting teams to roll successively, and but one frame at a time, and to change alleys each frame. The game shall consist of ten frames on each side. All strikes and spares made in the tenth frame shall be rolled off before leaving the alley, and on the same alley as made. Should there be a tie at the end of the tenth frame, play shall continue upon the same alley until a majority of points upon an equal number of frames shall be attained, which shall conclude the game.

10. Players must play in regular rotation, and after the first frame no changes shall be made in players of their position unless with the consent of the captains.

11. A player in delivering a ball must not step on or over the line, nor allow any part of his body to touch on or beyond the line, nor any portion of his foot to project over the line, while at rest, until after the ball has reached the pins. Any ball so delivered shall be deemed foul, and the pins made on such ball, if any, shall be respotted. Should any ball delivered leave the alley before reaching the pins, or any ball rebound from the back cushion, the pins, if any, made on such balls shall not count, but must be respotted. All such balls to count as balls rolled. Pins knocked down by pin or pins rebounding from the side or back cushion shall count as pins down.

12. The deadwood must be removed from the alley after each ball rolled. Should any pins fall in removing the deadwood, such pins must be respotted.

13. In all match games two umpires shall be selected by the captains of the competing teams, to be stationed at the points and to respectively perform the duties they may agree upon.

14. In all match games there shall be two scorers appointed, one by the captain of each team, whose duty it shall be to keep a correct



record of the game, and at the conclusion thereof sign their names to the score.

15. The umpire shall take great care that the regulations respecting the balls, alleys, pins and all the rules of the game are strictly observed. They shall be the judges of fair and unfair play at their respective stations, and shall determine all disputes and differences which may occur during the game. They shall take special care to declare all foul balls immediately upon their delivery, unasked, and in a distinct and audible voice. They shall in every instance, before leaving the alley, declare the winning club and sign their names to the scores. The decision of either of the umpire, respecting matters at their stations, shall in all cases be final.

16. Neither umpires nor scorers shall be changed during a match game, unless with the consent of the captains of the teams.

17. No person engaged in a match game as umpire or scorer shall be directly or indirectly interested in any bet upon the game.

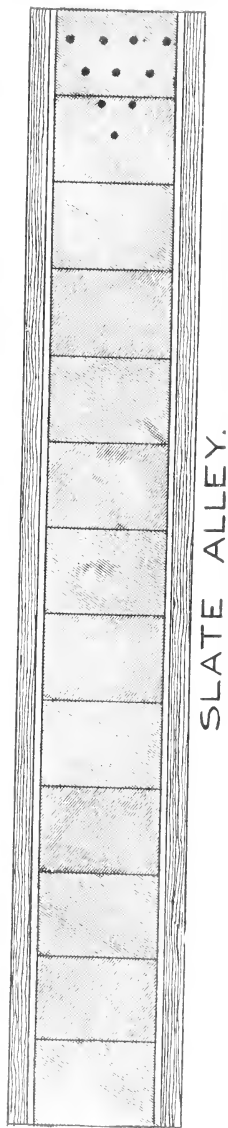


Fig. 3.

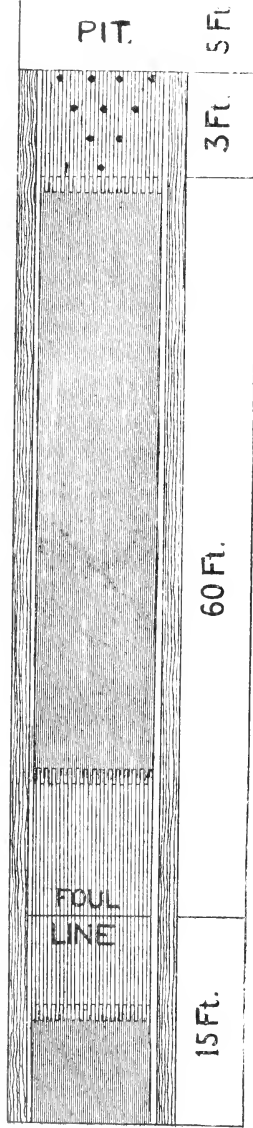


Fig. 1

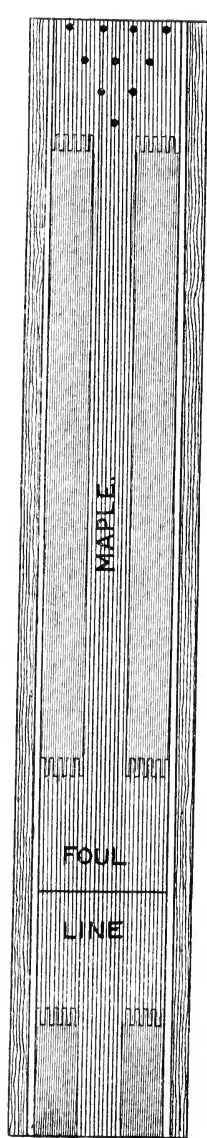


Fig. 2

THE SPALDING



# Bowling Alleys



In writing for estimates always state the character of the foundation, whether on the ground floor or across joists. In building alleys on a concrete floor, the "sleepers" should be imbedded in the concrete and placed 20 inches apart from centre to centre. The size of sleepers should be 3 inches by 8 inches, with the first sleeper 4 feet from the pit end of the alley.

*Prices on  
application*

**A. G. SPALDING & BROS.**

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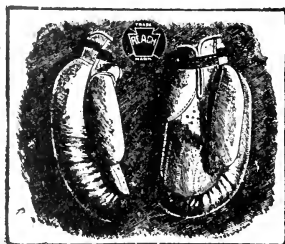
“Corbett”  
(TRADE MARK)

# Boxing Gloves

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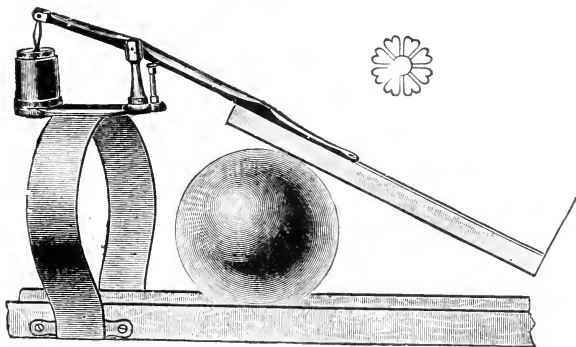
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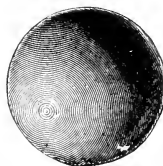
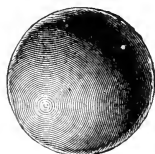
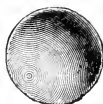
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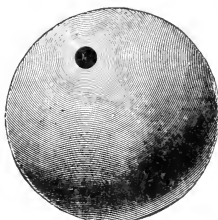
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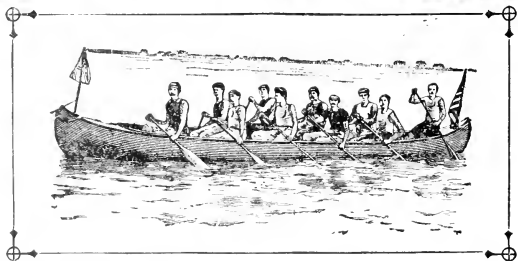
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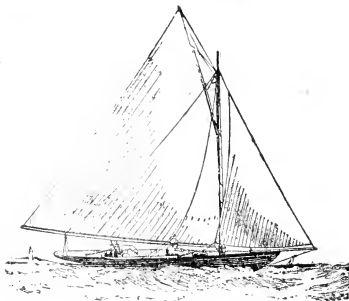
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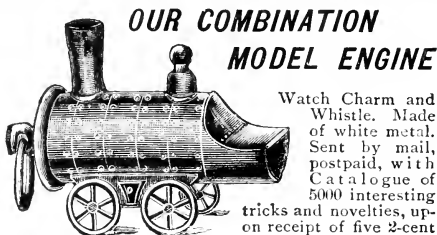
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